Cell-type specific microRNA/mRNA analysis in complex tissues

Pancreatic Ductal Adenocarcinoma (PDAC)

Tumor tissue (TT)

Stromal tissue (ST)

Tumor vessels (TEC)
Healthy and malignant tissues are mixtures of multiple cell types:

1. Tumor cells
2. Stromal cells
3. Microvasculature – mainly endothelial cells
4. Other specialized cell types (e.g., Tumor Infiltrating Lymphocytes)

Compartmentalization of tissue to disentangle tissue heterogeneity and sensitive analytical methods are essential to obtain interpretable results from tissue analysis.

How low can we go?

Using this protocol we have demonstrated:

- a profound difference in RNA expression signatures between whole tumor and subsets of cell types within the tumor and
- large heterogeneity in RNA expression signatures between tumor, stroma and tumor endothelial cells*.

* Note: the technology can be utilized for almost any tumor tissue sample.
Vivomicx has developed validated protocols to process preclinical and clinical tissue samples using Laser Microdissection (LMD).

TAmiRNA offers high quality RNA services performed by experts:
- targeted microRNA and mRNA analysis (RT-qPCR)
- microRNA screening (RT-qPCR and NGS)

Workflow:

At Vivomicx:
- Sample requirement: Fresh frozen or FFPE ** tissue
- Quality checks, including PA by dedicated pathologist
- Mock LMD procedure to check RNA quality

At TAmiRNA:
- Final report
- miRNA/mRNA expression analysis
- NGS
- RT-qPCR
- RNA extraction

LMD & RNA expression analyses enables to:
- Increase precision for discovering the differences between “healthy” and “diseased” tissues
- Determine treatment effects on complex tissues at high resolution

Applications:
- Disease mechanisms
- Novel biomarker
- Novel drug candidates
- Drug mode-of-action

** For FFPE samples – please contact us!